

Z:\RIDDLE FARM - WTPA-DEPARTMENTS\MEP-MODELS - DRAWINGS\M-100 - REDESIGNING.DWG

General Plan Symbols			HVAC Symbols			Mechanical Piping Symbols		
	Plan Revision Number			Sq. Duct Size (Width x Height)			Nominal Pipe Size	
	Detail Number on Sheet			Oval Duct Size (Width / Height)			Above Ground Piping	
	Sheet Number Where Detail is Placed			Round Duct Size (Diameter)			Below Ground Piping	
	Keynote Symbol			Existing Duct To Remain			Pipe Slope (When Applicable)	
	Continuation Symbol			Duct To Be Demolished			Existing Pipe To Remain	
	Point Where New Connects To Existing			Supply Air			Pipe To Be Demolished	
	Room Name / Number			Ventilation Air			Chilled-Water Return	
	Area Being Demolished			Outdoor Air			Chilled-Water Supply	
	Area Not In Contract			Return Air			Condensate Drain	
				Transfer Air			Condenser-Water Return	
				Building Relief Air			Condenser-Water Supply	
				General Exhaust Air			Geothermal-Water Return	
				Kitchen Exhaust Air			Geothermal-Water Supply	
				Laboratory Hood			Hot-Water Return	
				Env. Tobacco Smoke			Hot-Water Supply	
				Flue Gas Vent			Natural Gas	
				Combustion Air			Liquid Propane	
				Rect. Supply Duct Rise / Drop			Refrigerant Liquid	
				Round Supply Duct Rise / Drop			Refrigerant Gas	
				Rect. Return Duct Rise / Drop			Refrigerant Discharge	
				Round Return Duct Rise / Drop			Steam Supply	
				Rect. Exhaust Duct Rise / Drop			Steam Condensate Return	
				Round Exhaust Duct Rise / Drop			Pipe Rise / Drop	



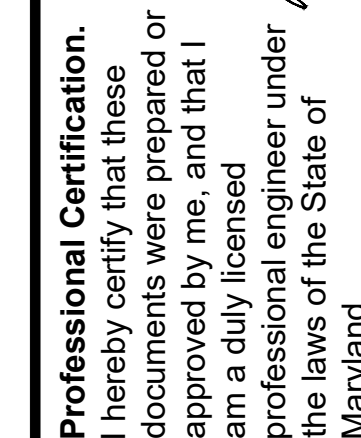
MECHANICAL LAYOUT

RIDDLE FARM - WTP HVAC

WORCESTER COUNTY, MARYLAND

RAUCH
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License No. 11024
Expiration Date: July 24, 2028

DATE	09/14/2026
SCALE:	AS SHOWN
DRAWN BY:	EEY
DESIGNED BY:	HJH
APPROVED BY:	

SHEET NO.:

M-100

RIDDLE FARM - WTP HVAC

Z:\RIDDLE FARM WTP\4-DEPARTMENTS\WEP-MODELS - DRAWINGS\N-100 - REDESIGN.DWG

EXHAUST FAN SCHEDULE																
TAG	QTY	FAN UNIT MODEL #	MANUFACTURER	CFM	ESP	RPM	MOTOR ENCL	HP	BHP	ELECTRICAL DATA			DISCHARGE VELOCITY	WEIGHT (LBS)	SONES	NOTES
										AMPS	PHASE	VOLTAGE				
EF-1	1	VFP16P3	J & D MANUFACTURING	2268	0.10	1720	IP66	11/32	-	0	3	480	-	93	-	FAN CONTROLLER (JD26 PLUS - J&D MANUFACTURING).

VENTILATION NOTES:
• THE CHEMICAL STORAGE VOLUME IN THIS FACILITY DOES NOT EXCEED THE MAXIMUM ALLOWABLE QUANTITIES PER IBC 2021 AND THE SPACE IS CLASSIFIED AS F-2. AIR CHANGE RATE OF 6 ACH IS REQUIRED TO MEET IMC 2021. THIS SPACE IS CLASSIFIED AS NON-HAZARDOUS.

DOAS/RTU FAN SCHEDULE – JOB#8893813

FAN INFORMATION										ELECTRICAL INFORMATION					COOLING INFORMATION							REHEAT INFORMATION				GAS HEAT INFORMATION					A2L MINIMUM ROOM VOLUME			NOTES				
FAN UNIT NO.	TAG	QTY	DOAS/RTU MODEL #	MANUFACTURER	BLDWER	TOTAL CFM	MAX OUTSIDE AIR CFM	RETURN AIR CFM	WEIGHT (LBS)	ESP	HP	PHASE	VOLT	MCA	MDCP	OUTSIDE AIR		LEAVING AIR			CAPACITY		IEER	ISMRE2	DISCHARGE		CAPACITY		MOISTURE REMOVAL RATE	GAS TYPE	INPUT BTUS	OUTPUT BTUS	TEMP RISE		REQUIRED INPUT GAS PRESSURE	ROOM AREA (F ²)	AIRFLOW (CFM)	HEIGHT (F ¹)
																DB	WB	DB	WB	DP	TOTAL	SENS.			DB	WB	DESIRED	MAX										
1		1	CAS-HVAC3-1.250-15-15T-DOAS	CAPTIVEAIRE	15P-3	2170	2170	0	2614	0.300	1.50	3	460	27.5A	30A	86.0°F	79.6°F	53.8°F	51.8°F	50.3°F	204.7 MBH	75.0 MBH	18.8	8.3	75.0°F	60.2°F	51.6 MBH	129.6 MBH	116.7 LBS/HR	NATURAL	247430	200418	77°F	7 IN. W.C. - 14 IN. W.C.	543.3	978	7.2	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23
NOTES: 1. INVERTER SCROLL COMPRESSOR WITH INTEGRATED OIL SENSOR. DIGITAL OR STAGED SCROLL NOT AN APPROVED EQUAL 2. DIRECT DRIVE PLENUM BLOWER. BELT DRIVEN BLOWERS ARE NOT ACCEPTABLE 3. INTEGRATED MONITORING VIA CELLULAR CONNECTION BY MANUFACTURER 4. REFRIGERATION PRESSURE MONITORING ON HIGH AND LOW PRESSURE SIDE OF SYSTEM INCLUDED THROUGH DIGITAL INTERFACE 5. EC MOTOR CONDENSING FANS 6. ELECTRONIC EXPANSION VALVE. TXV NOT ACCEPTABLE 7. SUCTION LINE ACCUMULATOR 8. FACTORY COMMISSIONING WITH 5 YEAR PARTS WARRANTY, 25 YEAR WARRANTY ON STAINLESS STEEL HEAT EXCHANGER 9. AVERAGING INTAKE, EVAP AND DISCHARGE TEMPERATURE SENSORS (DISCHARGE SENSOR TO BE FACTORY MOUNTED WITHIN UNIT) 10. 2" EXTERIOR DUAL-WALL CONSTRUCTION W/ R-13 INSULATION-MINIMUM 20GA EXTERIOR W/ 14GA BASE 11. 81% EFFICIENT FURNACE, WITH MODULATING INDUCER TO MAINTAIN CONSTANT COMBUSTION EFFICIENCY ACROSS FIRING RANGE. 15:1 TURNDOWN WITH NG AND 12:1 TURNDOWN WITH LP 12. UNIT SHALL INCLUDE A SERVICE SAFE STOP FEATURE - PROTECTS THE COMPRESSOR FROM DAMAGE DURING SHUTDOWN FOR SERVICE 13. SUPPLY CFM MONITORING INTEGRAL TO UNIT WITH CFM MEASUREMENT INCLUDED THROUGH DIGITAL INTERFACE 14. FULLY MODULATING HOT GAS REHEAT 15. LOW AMBIENT COOLING OPERATION DOWN TO 0°F 16. E-COATED CONDENSING COIL 17. E-COATED EVAPORATIVE COIL 18. E-COATED REHEAT COIL 19. HAIL GUARD FOR CONDENSING COIL 20. FACTORY INSTALLED COMPRESSOR SOUND BLANKET 21. SIDE DISCHARGE/NO RETURN 22. MINIMUM ROOM AREA ASSUMED 7.2' SUPPLY DIFFUSER HEIGHT AND IS CALCULATED PER UL60335-2-40 4TH ED. VALUES BASED ON FACTORY CHARGE. ACTUAL SITE CHARGE MAY DIFFER. 23. SCOR RATING OF 10KAMP																																						

FOR QUESTIONS, CALL THE
Maryland Mechanical
REGION 76
PHONE: (800) 988 - 0881
EMAIL: reg76@captiveaire.com

CURB ASSEMBLIES

NO	DN FAN	R-VALUE	WEIGHT	ITEM	SIZE
1	# 1	4.3	130 LBS	CURB	59.500"W X 91.000"L X 20.000"H INSULATED.

1" R4.3 FOIL FACED FIBERGLASS INSULATION. COMPLIES WITH UL/ULC,ASTM, & ASHRAE STANDARDS.

VENTILATION SCHEDULES

Project Name	Riddle Farm WTP	Supply Air	2169
Date	7/30/2026	Outdoor Air	220
Unit Tag			

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q			
Room #	Description	Area (sqft) (Az)	Area Outdoor Air Rate (RaAz)	Area Outdoor Air (RaAz)	Occupancy Load (People/1000 sqft)	Occupancy (C X F)/1000 (Pz)	Occupant Outdoor Air Rate (Rp)	Occupant Outdoor Air (RpAz)	Breathing Zone Outdoor Air (Vbz = RpPz + RaAz)	Zone Air Distribution Effectiveness (Ez)	Zone Outdoor Air (Voz = Vbz/Ez)	Ceiling Height	Air Change Required	Supply Air Design (Vpz)	Outdoor Air Fraction (Zp = Voz/Vpz)	Exhaust Air Design	Code References	Min Air Change (ASHRAE Only)	Min Outdoor Air Change (ASHRAE Only)
	TANK SPACE	1549	0.06	93	10	16	5	80	173	0.8	217	14	6	2169	0.10		Tank space with ceiling		
Totals		1549		93		16		80	173		217			2169		0			

MECHANICAL SCHEDULES

RIDDLE FARM - WTP HVAC

WORCESTER COUNTY, MARYLAND

RAUCH
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Professional Certification.
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

License No. 11024
Expiration Date: July 24, 2028

REVISIONS

REV. #	DATE	DESCRIPTION



DATE: 09/14/2026
SCALE: AS SHOWN
DRAWN BY: EEV
DESIGNED BY: HJH
APPROVED BY:

SHEET NO.:
M-500

Electrical Abbreviations			
1P	1 Pole (2P, 3P, 4P, ETC.)	MCB	Main Circuit Breaker
A	Ampere	MCC	Motor Control Center
AC	Above Counter	MDC	Main Distribution Center
ACLG	Above Ceiling	MDP	Main Distribution Panel
ADO	Automatic Door Opener	MFR	Manufacturer
AF	Amp Frame	MFS	Main Fused Disconnect Switch
AFF	Above Finished Floor	MH	Manhole
AFG	Above Finished Grade	MIC	Microphone
AFI	Arc Fault Circuit Interrupter	MIN	Minimum
AHU	Air Handling Unit	MISC	Miscellaneous
AL	Aluminum	MLO	Main Lugs Only
ALT	Alternate	MMS	Manual Motor Starter
AMP	Ampere	MOA	Multioilet Assembly
AMPL	Amplifier	MSP	Motor Starter Panelboard
ANNUN	Annunciator	MSBD	Main Switchboard
APPROX	Approximately	MSS	Motor Starter Switch
AQ-STAT	Aquestat	MT	Mount
ARCH	Archited, Architectural	MT-C	Empty Conduit
AS	Amp Switch	MTS	Manual Transfer Switch
AT	Amp Trip	MTR	Motor, Motorized
ATS	Automatic Transfer Switch	N.C.	Normally Closed
AUTO	Automatic	NEC	National Electrical Code
AUX	Auxiliary	NEMA	National Electrical Manufacturers' Association
AV	Audio Visual	NFDS	Non-Fused Safety Disconnect Switch
AWG	American Wire Gauge	NIC	Not In Contract
BATT	Battery	NL	Normal Light
BD	Board	NO	Normally Open
BLDG	Building	NPF	Normal Power Factor
BMS	Building Management System	NTS	Not To Scale
C	Conduit	OC	On Center
CAB	Cabinet	OH	Overhead
CAT	Catalog	OL	Overloads
CATV	Cable Television	OL	Overloads
CB	Circuit Breaker	PA	Public Address
CCTV	Closed Circuit Television	PB	Pull Box Or Pushbutton
CKT	Circuit	PE	Pneumatic Electric
CLG	Ceiling	PED	Pedestal
COMB	Combination	PF	Power Factor
COMP	Compressor	PH	Phase
CONN	Connection	PIV	Post Indicating Valve
CONST	Construction	PNL	Panel
CONT	Continuation Or Continuous	PP	Power Pole
CONTR	Contractor	PR	Pair
CONV	Converter	PR1	Primary
CP	Circulating Pump	PROJ	Projection
CRT	Cathode-Ray Tube	PRV	Power Roof Ventilator
CT	Current Transformer	PT	Potential Transformer
CTR	Center	PVC	Polyvinyl Chloride (Conduit)
CU	Copper	PWR	Power
DCP	Domestic Water Circulating Pump	QUAN	Quantity
DEPT	Department	RCPT	Receptacle
DET	Detail	REQD	Required
DIA	Diameter	RM	Room
DISC	Disconnect	RSC	Rigid Steel Conduit
DIST	Distribution	RTU	Roof Top Unit
DN	Down	SC	Surface Conduit
DPR	Damper	SEC	Secondary
DS	Safety Disconnect Switch	SHT	Sheet
DT	Double Throw	SIM	Similar
DWG	Drawing	SLD	Single-Line Diagram
EC	Electrical Contractor	SN	Solid Neutral
ELEC	Electric, Electrical	SPEC	Specification
ELEV	Elevator	SPKR	Speaker
ELU	Emergency Lighting Unit	SP	Spare
EM	Emergency	SPP	Single-Point Power
EMS	Energy Management System	SURF	Surface Raceway
EMT	Electrical Metallic Tubing	SS	Stainless Steel
EP	Electric Pneumatic	SSW	Selector Switch
EQUIP	Equipment	S/S	Stop/Start Pushbuttons
EWC	Electric Water Cooler	STA	Station
EXIST	Existing	STD	Standard
EXH	Exhaust	SURF	Surface Mounted
EXP	Explosion Proof	SW	Switch
FA	Fire Alarm	SWBD	Switchboard
FABP	Fire Alarm Booster Power Supply Panel	SYM	Symmetrical
FACP	Fire Alarm Control Panel	SYS	System
FCU	Fan Coil Unit	TERM	Terminal
FIXT	Fixture	TL	Twist Lock
FLR	Floor	TR	Tamper Resistant
FLUOR	Fluorescent	T-STAT	Thermostat
FU	Fuse	TTC	Telephone Terminal Cabinet
FUSD	Fused Safety Disconnect Switch	TV	Television
G	Gauge	TVTC	Television Terminal Cabinet
GAL	Gallon	TYP	Typical
GALV	Galvanized	UC	Under Counter
GC	General Contractor	UE	Underground Electrical
GEN	Generator	UG	Underground
GFI	Ground Fault Circuit Interrupter	UH	Unit Heater
GFP	Ground Fault Protector	UT	Underground Telephone
GND	Ground	UTIL	Utility
GRS	Galvanized Rigid Steel (Conduit)	UV	Ultraviolet
GYP BO	Gypsum Board	V	Volt
HDA	Hands-Off Automatic Switch	VA	Volt-Amperes
HORIZ	Horizontal	VDT	Video Display Terminal
HP	Horsepower	VERT	Vertical
HPF	High Power Factor	VFD	Variable Frequency Drive
HT	Height	VOL	Volume
HTG	Heating	W	Watt
HTR	Heater	WI	With
HV	High Voltage	WG	Wire Guard
HVAC	Heating, Ventilating And Air Conditioning	WH	Water Heater
IC	Interrupting Capacity	W/O	Without
IG	Isolated Ground	WP	Weatherproof
IMC	Intermediate Metal Conduit	XFR	Transformer
INCAND	Incandescent	XFR	Transfer
IR	Infrared		
IW	Interlock With		
J-BOX	Junction Box		
KV	Kilovolt		
KVA	Kilovolt-Ampere		
KVAR	Kilovolt-Ampere Reactive		
KW	Kilowatt		
KWH	Kilowatt Hour		
LOC	Locate Or Location		
LT	Light		
LTG	Lighting		
LTNG	Lightning		
LV	Low Voltage		
MAX	Maximum		
MAG-S	Magnetic Starter		
MIC	Momentary Contact		
MC	Mechanical Contractor		

∠ Angle
@ At
▲ Delta
K Feet
" Inches
K Kilowatt
Number
O Phase
C Center Line
P Plate

Electrical Symbol Legend

Lighting Symbols

Lighting Fixtures, Typical, Rectangular
Diagonal line indicates lensed.
Outer dots indicate suspended.

Lighting Fixtures, Typical, Round (Various Symbols)
Diagonal line indicates lensed.
Chevron indicates wall wash

Wall-mounted fixtures, Typical (Various Symbols)

Strip Fixture

Directional Light, Track Light, Flood Light

Linear Light, Tape Light

Emergency Lighting Unit, Ceiling-Mounted, Integral Battery

Emergency Lighting Unit, Ceiling-Mounted, Remote Battery

Emergency Lighting Unit, Wall-Mounted, Integral Battery

Emergency Lighting Unit, Wall-Mounted, Remote Battery

Exit Light, Ceiling-Mounted.
Shading and arrows indicate faces and directional chevrons

Exit Light, Wall-Mounted.
Shading and arrows indicate faces and directional chevrons

Exit/ELU Combo

Pole/Area Lights

Post-Top Area Light

Bollard Light

Solid hatch indicates light on a critical circuit.

Solid hatch indicates light on an emergency or life safety circuit.

Single-Pole Switch

Two-Pole Switch

Three-Pole Switch

Switch Modifiers:
3: 3-Way
4: 4-Way
K: Keyed
T: Timer
OS: Occupancy Sensor
VS: Vacancy Sensor
AC: Above Counter
LV: Low-Voltage
M: Motor-Rated

Lighting Contactor

Lighting Control Panel

Explosion Sensor

Daylight Harvesting Sensor

Ceiling Fan Controller

Lighting Tags

A Top Value: Fixture Type ID (Underlined)
A1a Bottom Value, Lowercase Letter: Switch ID
Bottom Value, Number(s): Circuit Number
Typical
UC Under Counter
UE Underground Electrical
UG Underground
UH Unit Heater
UT Underground Telephone
UTIL Utility
UV Ultraviolet
V Volt
VA Volt-Amperes
VDT Video Display Terminal
VERT Vertical
VFD Variable Frequency Drive
VOL Volume
W Watt
WI With
WG Wire Guard
WH Water Heater
W/O Without
WP Weatherproof
XFR Transformer
XFR Transfer

Absence of a switch designation on a lighting fixture indicates fixture is controlled by the only switch in the space. An "x" in place of the switch designation indicates unswitched.

Grounding and Lightning Protection Symbols

Ground Rod

Ground Rod with Test Well

Static Ground Receptacle

Lightning Protection Air Terminal

Lightning Protection Conductor Splice

Power Symbols

Half shading indicates split (typically switched)
Outside shading indicates emergency circuit
Center shading indicates isolated ground

Single-Pole Switch

Two-Pole Switch

Three-Pole Switch

Switch Modifiers:
K: Keyed
T: Timer
AC: Above-Counter
M: Motor-Rated

Multioilet Assembly
Filled squares indicate 120V outlet
Open squares indicate with USB

Cord Reel, Device Varies

Drop Cord, Device Varies

Junction Box

Floor Box, see schedule for type

Emergency Power Off

Door Opener Push Plate

Power Meter

Safety Switch, Fused

Safety Switch, Unfused

Motor Starter

Combination Starter/Disconnect

Contact

Power Device and Equipment Tags

Electrical Device Tags: Uppercase letter(s) indicates Panel ID and circuit number. Lowercase letter indicates designation of controlling switch (where applicable).

Equipment Tags

Equipment ID is indicated by an underline tag adjacent to the equipment. See the equipment connection schedule for description, electrical requirements, and panel and circuit number. Symbols/graphic appearance of equipment varies.

Wiring

Solid, arced lines connecting equipment, devices, or fixtures indicate unswitched power circuiting. Wires are only intended to indicate to what circuit devices are connected. Actual connections, circuit routing, installation, junction boxes, etc. shall be field-determined by the contractor.

Dashed, arced lines connecting equipment, devices, or fixtures indicate switched power.

Home run to branch circuit (panelboard). The equipment, name and circuit number(s) are indicated, separated by a hyphen. Home runs are only intended to indicate panel and circuit number. Actual homerun location shall be field-determined by the contractor.

Power Distribution Equipment

Switch ID indicated by a lowercase letter. Switch IDs are unique per space. A switch with an ID "a" controls all devices within the space in which is located tagged with "a". A switch without a tagged ID controls all lighting fixtures within a space. ID tags may be used on control devices other than switched, such as occupancy sensors or contactors.

Hatched fill indicates distribution panel or switchboard. Solid fill indicates branch panel or load center. Dashed box indicates code-required clearance (width and depth). Door indicates front of recessed panel.

Panelboards are assigned abbreviated indicator (or Panel ID) for use with circuit numbers. Panel ID is listed within the panel schedule and in the panel abbreviation schedule.

Equipment is tagged with Panel Name and with Panel ID in parentheses. Panel ID is intended as a design documentation aid only. Do not include Panel ID in field-applied circuit directories or labels.

Devices and fixtures are tagged with Panel ID and circuit number. For example, a device tagged with "A1" indicates the device is circuted to panel designated "A", circuit number 1. The panel schedule circuit number contains both the panel abbreviation and the circuit number.

Transformer: Typically transformer names begin with or contain the letter "T". See Single-Line Diagram for description and requirements.

Telecom Symbols

Data Outlet

Telephone Outlet

Data/Telephone Outlet

Outlet Modifiers:
##: Height AFF OC
AC: Above Counter
Wireless Access Point

TV Outlet

Nurse Call Symbols

Nurse Call Corridor Light
Number of lights as indicated

Nurse Call Device
B: Code Blue
D: Duty Station
E: Emergency
P: Patient Call
S: Staff

Nurse Call Control Unit
NCAP: Nurse Call Annunciator Panel
NCHS: Nurse Call Host Controller
NCPS: Nurse Call Power Supply
NCTO: Nurse Call Terminal Cabinet
NCUPS: Uninterruptable Power Supply

Security Symbols

Security Camera
PTZ: Pan/Tilt/Zoom

Card Reader

Card Reader with Keypad

Closed Circuit TV Outlet

Door Contact

Electric Strike

Intercom

Magnetic Lock

Request to Exit Button

Request to Exit Sensor

Motion Detector

Security Control Unit
SCP: Security Control Panel
SPS: Security Power Supply Unit

Construction Phasing

Existing to Remain

Existing to Be Demolished

New

Existing to Be Demolished

Miscellaneous

Area Not in Contract

Keynote

Callout:
Top Value: Detail Number on Sheet
Bottom Value: Sheet Number on Sheet

Room

Room Name and Number

Fire Alarm Symbols

Manual Pull Station

Horn, Wall

Horn, Ceiling

Strobe, Wall, Candela as indicated

Strobe, Ceiling, Candela as indicated

Horn/Strobe, Wall, Candela as indicated

Horn/Strobe, Ceiling, Candela as indicated

Remote Indicator w/ Test Switch, Wall

Remote Indicator w/ Test Switch, Ceiling

Smoke Detector

Heat Detector

Carbon Monoxide Detector

Beam Detector T: Transmitter R: Receiver

Combination Detector (Up to Three)

Duct Smoke Detector

Smoke Damper

Door Holder

Door Closer

Fire Service Phone

Addressable Module

AIM: Addressable Input Module
AOM: Addressable Output Control Module
AIO: Addressable Input/Output Module

Fire Alarm Control Unit
EVA-C: Voice Evacuation Control Panel
FAA: Fire Alarm Annunciator
FACP: Fire Alarm Control Panel
FATC: Fire Alarm Terminal Cabinet
NACP: Notification Appliance Circuit Panel
FAMN: Fire Alarm Mass Notification Control Panel

Supervisory or Interface Device
PIV: Post Indicator Valve Supervisory
PS: Pressure Switch
R: Non-Addressable Relay
VS: Valve Supervisory Switch
WF: Water Flow Switch

Site Lighting

Square D company class 8903LXG1200-V02-C-R6, (12) pole 30 amp mechanically held contactor w/ 120V coil, has switch with 2 wire interface, Nema 1 enclosure. Wire for photo eye "ON" and "OFF"

ELECTRICAL GENERAL NOTES

- All work shall meet the 2021 International Building Code, 2017 NFPA 70, National Electrical Code and 2018 International Energy Conservation Code.
- Low voltage cables or conductors operating at less than 50 volts shall be in metal raceway where installed within walls or inaccessible spaces. Low voltage cables may be run in cable tray where noted. Low voltage cables may be run in cable support hooks above accessible ceilings where noted. Low voltage cable shall be plenum rated in plenum spaces.
- Conductors operating at 50 volts or greater shall be in raceway. Raceway within the structure above the floor slab shall be metal. Raceway below the floor slab and underground raceway outside the structure shall be PVC.
- Low voltage cables or conductors operating at less than 50 volts shall be in metal raceway. Low voltage cables may be run in cable tray where noted. Low voltage cable shall be plenum rated in plenum spaces.
- Coordinate locations of devices with architectural elevations and details. Architectural elevations and details take precedence over locations shown on electrical drawings.
- Provide cable or conduit and wire as required to achieve circuiting shown. Size conductors per NEC ampacity and wire fill criteria. Provide dedicated neutral and ground conductors for circuiting, unless noted otherwise. Increase branch circuit and/or feeder conductors including equipment grounding conductors proportionally for no more than 3% voltage drop on branch circuits and 2% on feeders per energy code.
- It is the responsibility of this contractor to coordinate installation of electrical systems and those requiring electrical connections to maintain NEC required clearances, included but not limited to areas above accessible ceilings.
- Coordinate with other trades for proper installation of equipment. Consult the drawings of other trades or crafts to avoid conflicts with equipment, etc. Conflicts shall be resolved prior to rough-in and at no additional cost to the owner.
- Leave the site clean and ready for occupancy. Remove dirt, debris, empty cartons, tools, conduit and wire scraps, and miscellaneous spare equipment and materials used in this division of the work during construction. Components shall be free of dust, grit, and foreign materials and built as new before final acceptance of work.
- The symbols and abbreviations shown on this sheet may or may not be used in this set of drawings.
- Perform work to comply with the standard practices for good workmanship published by National Electrical Contractors Association (NECA). Comply with the latest enforced edition of the National Electrical Code (NEC), local codes, amendments, and ordinances.
- Field coordinate final mechanical and equipment locations along with connection requirements and control wiring prior to rough-in. Adjust corresponding circuit breaker ratings and branch circuiting accordingly.
- Electrical work shall be performed under the supervision of a licensed master electrician. Procure permits and licenses and pay fees associated with this work.
- Materials furnished for this project shall be new, commercial grade, free of defects, and listed by a nationally recognized testing laboratory unless noted otherwise.
- Provide complete operation & maintenance manual including approved submittal drawings, warranty information for product supplied, and manufactures operation and maintenance instructions.
- The contractor is responsible for making final wiring terminations to pre-installed receptacles in office furniture. Contractor is responsible for wiring and installing voice/data devices in office furniture. Coordinate placement of devices with furniture layout.
- Security system to be provided under separate contract. It is responsibility of this contractor to provide conduit provisions, back boxes, rough-ins, sleeves and power to head end equipment for exact requirements prior to start of work.
- Conduit and wire shall not be installed below floor slab unless indicated on plan by dashed conduit.
- Contractor shall be responsible for wiring electrical items shown on drawings except for items listed in note 'R' below.
- TV outlets, volume controls, nurse call dome lights, nurse call devices, telephone outlets, data outlets, and fire alarm devices shall consist of a black box with conduit stubbed above the accessible ceiling, see sub up detail. Verify size of back box required with device to be installed. Locate back boxes 6" from adjacent power receptacle intended for computer use.
- Furnish and install conduit from back boxes for the following devices into the accessible ceiling space in the corridor, unless noted otherwise:
 - 1/2" TV outlets
 - 1/2" Volume controls
 - 1/2" Door security devices (card readers, door strikes, etc.)
 - 1/2" Nurse call dome lights
 - 3/4" Nurse call devices
 - 3/4" Telephone outlets
 - 3/4" Information outlets
 - 3/4" Fire alarm devices
- Electrical contractor shall verify and coordinate conduit runs, circuiting and wiring as required to provide complete electrical installations. All the wiring to be UL approved.
- Electrical contractor shall provide correct amperage for all equipment indicated on the plan.
- All work must comply with local codes and ordinances.
- Where outlets are shown back to back, install on studs and insulate between.
- All counter plugs shall be GFCI protected.
- Power for special lighting elements in cabinetry to be coordinated with designer, electrician and cabinet maker.
- Bathroom receptacle outlets shall be supplied by at least one 20 amp branch circuit, such circuits shall have no other outlets.
- Any base building work letter, tenant specifications, or architectural general conditions shall govern all products and the execution of work.
- Electrical plans are diagrammatic only, refer to architectural drawings for exact locations, dimensions, and method of mounting for lighting fixtures, fire alarm devices, ceiling devices, receptacles, switches, exit signs, telephone, and data outlets.
- Electrical contractor shall refer to mechanical, plumbing, and other discipline drawings for location of plumbing, and other discipline drawings for location of plumbing, and other discipline equipment, electrical contractor shall coordinate and verify voltage/phase indicated on electrical drawings with plumbing, and other discipline equipment to be provided prior to installing electrical service. Should a discrepancy be noted between equipment to be supplied and what is indicated on the drawings, contractor shall obtain written directions from engineer before proceeding with work.
- A dedicated circuit is required for dishwasher, disposal and microwave if built in.
- At least 2-20 amp dedicated small appliance circuits for the outlets serving the countertops are required at kitchen.
- Bathroom exhaust fans shall be energy star compliant and be ducted to terminate outside the building, unless functioning as a component of a whole house ventilation system.
- Light fixtures to be centered on ceilings unless noted otherwise.
- Recessed fixtures in insulated ceiling: fixture recessed into insulated ceiling shall be approved for zero clearance insulation cover (IC) by UL or other testing/rating laboratories recognized by the International Conference of Building Officials, and shall include a label certifying air tight (ATI) or similar designation to show air leakage less than 2.0 cfm at 75 pascals (or 1.57 lbs./sq. ft.) when tested in accordance with ASTM E283, and shall be sealed with a gasket or caulk between the housing and the ceiling.
- Where switches are shown adjacent to each other they shall be engaged and covered by a single switch plate.
- Electrical contractor shall coordinate with mechanical, plumbing, fire protection, and other discipline contractors on any required control circuits including "line" and "low" voltage power requirements. The electrical contractor will be responsible for providing any necessary "line" or "low" voltage wiring and conduit not provided under the other discipline scope
- All existing lighting to remain.

RACEWAYS AND CONDUCTORS

- Telephone, data, and control cables installed in the return air plenum rated or installed conduit.
- Cables and conduits on this project shall be neatly routed parallel and perpendicular to building lines. Cables that are bundled together for support shall not exceed ten (10) in quantity in any one location. Multiple bundles neatly installed and separated by physical space shall be used where cable quantities exceed ten (10).
- Raceways shall be provided with expansion fittings at building expansion joints and other areas where necessary to compensate for thermal expansion and contraction. Furnish and install O-Z/Gedney type "EX" or "TX" expansion fittings with bonding jumper where conduits cross building expansion joints.

DISTRIBUTION EQUIPMENT AND OVERCURRENT PROTECTION

- The contractor shall be responsible for correctly phasing and balancing the circuits in the panelboards, provide circuits with dedicated neutral conductors as indicated on the drawings. Provide circuits with shared neutral conductors as indicated on the drawings. Neutral conductors shall not be combined/shared where not indicated on the drawings. Where neutral conductors are indicated to be shared the phase conductors shall be on opposite phases. Provide junction boxes as required for the quantity of wires, connectors and devices contained therein where combining homeruns.

WIRING DEVICES

- Duplex receptacles shall be similar to pass and seymour #CR20 series and light switches shall be similar to pass and seymour #A20AC1 series, confirm device color with architect.
- Unless noted otherwise all switches and/or receptacles shown in the same location shall be installed in multiple gang boxes mounted under a common coverplate.
- All duplex receptacles on dedicated circuits shall be NEMA 5-20R.
- The highest operable part of the electrical and communication outlets shall be placed within the reach as required in the american with disabilities (ADA). These requirements do not apply where the use of the special equipment dictates otherwise or where electrical and communication outlets are not normally indicated for use by building occupants.
- Floor outlets (boxes, poke thrus, etc.) shall be listed for installation in particular floor type devices shall meet UL requirements for scrub water, dirt, and debris exclusion tests.

ELECTRICAL DRAWING INDEX

SHEET NO.	DWG TITLE
E-000	ABBREVIATIONS, SYMBOLS & NOTES
E-100	POWER LAYOUT
E-400	ELECTRICAL DETAILS
E-500	ELECTRICAL SCHEDULES

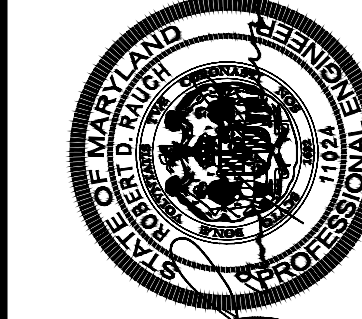
ABBREVIATIONS, SYMBOLS & NOTES

RIDDLE FARM - WTP HVAC

WORCESTER COUNTY, MARYLAND



Main Office: 106 N Harrison St - Easton, MD 21601
Web: www.rauch-inc.com | Email: design@rauch.com
Phone: 410 770 3681 | Fax: 410 770 3687



5-22-28

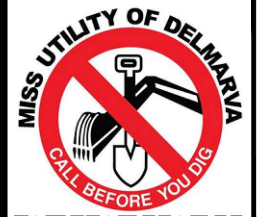
Professional Certification.

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

License No. 11024
Expiration Date: July 24, 2028

REVISIONS

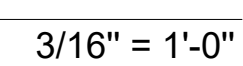
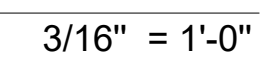
REV. #	DATE	DESCRIPTION



DATE	9/14/2026
SCALE	AS SHOWN
DRAWN BY:	EEY
DESIGNED BY:	HJH
APPROVED BY:	

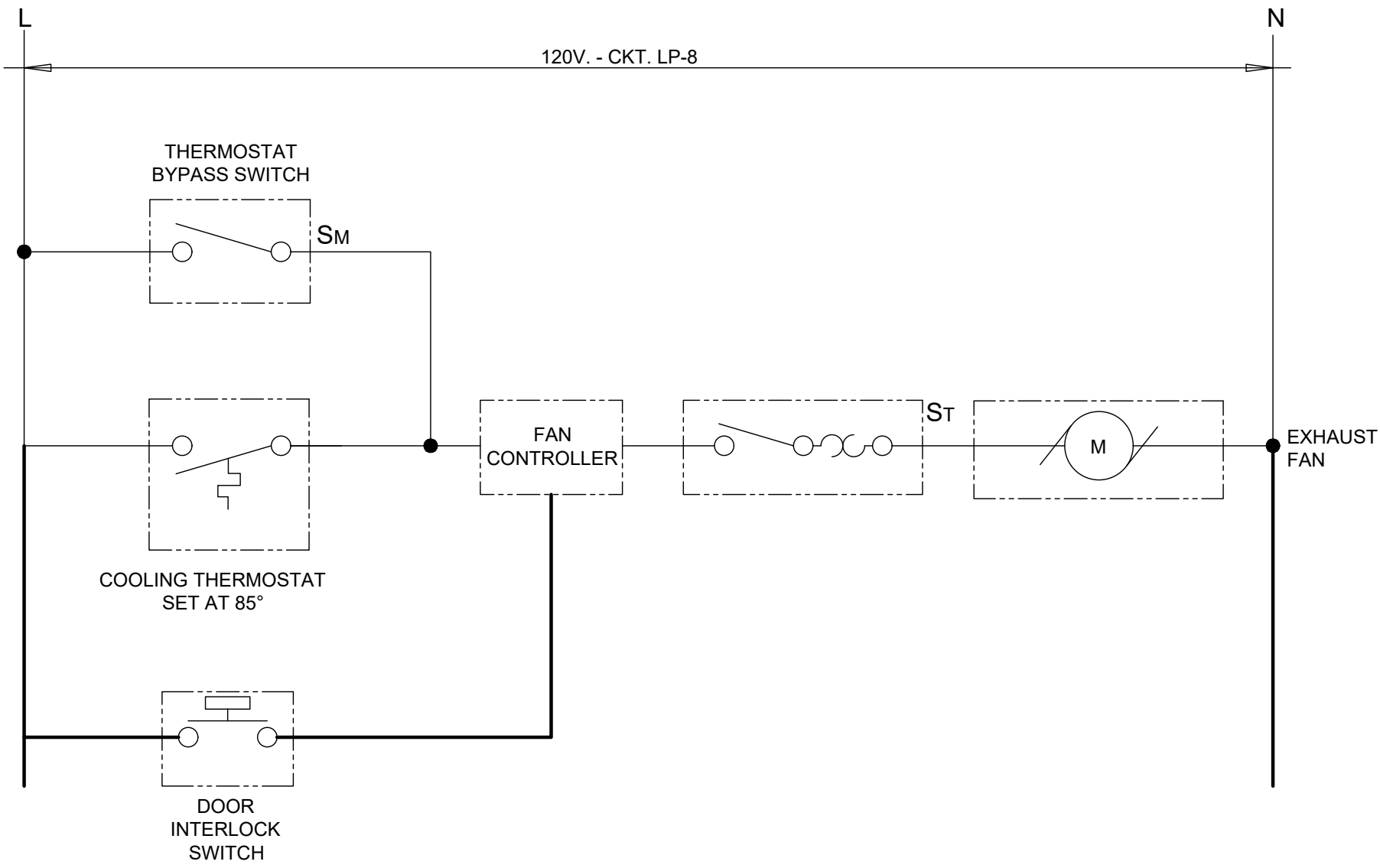
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E-000



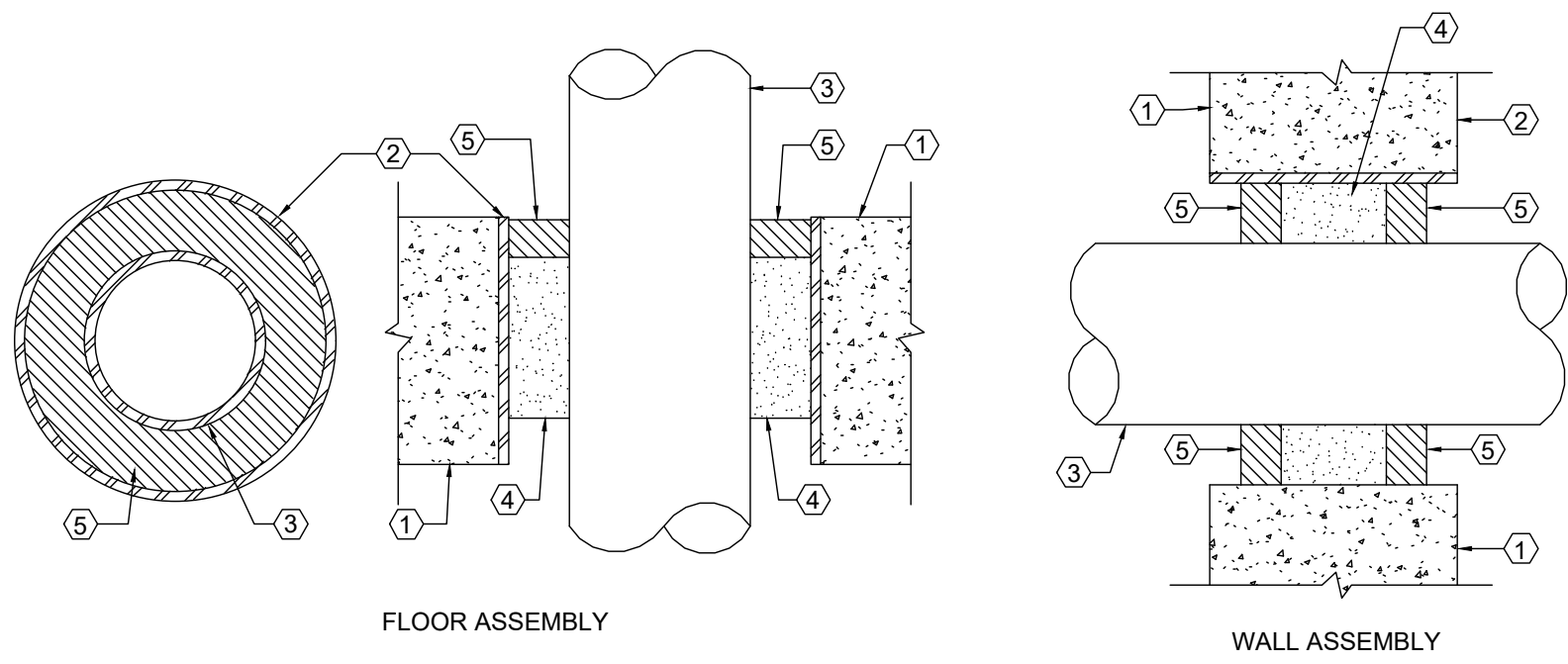
E-100

2:RIDDLE FARM WTP HVAC DEPARTMENTS WFP MODELS - DRAWINGS-E-100 - REVISIONS.DWG



1 THERMOSTAT EXHAUST DETAIL

NTS

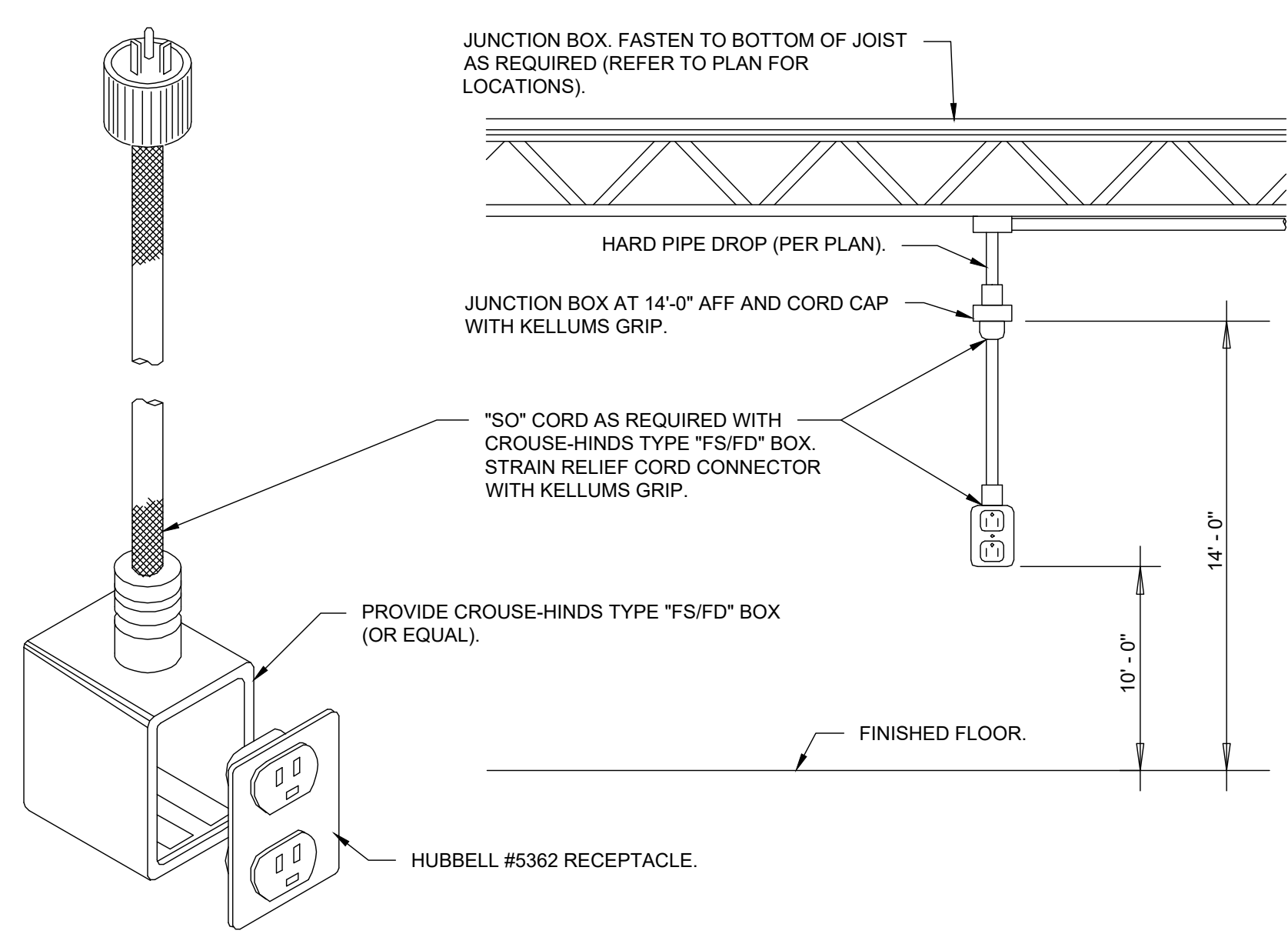


- CODED NOTES:
1. FLOOR OR WALL ASSEMBLY MINIMUM 5" THICK NORMAL WEIGHT CONCRETE FLOOR OR WALL OR MINIMUM 7-5/8" THICK MASORY WALL HAVING A MINIMUM 2 HOUR FIRE RESISTIVE RATING WITH A NOMINAL 6" DIAMETER OPENING.
 2. STEEL PIPE SLEEVE (OPTIONAL) NOMINAL 6" DIAMETER SCHEDULE 40 OR HEAVIER STEEL PIPE SLEEVE. (2 TRADE SIZES LARGER THAN CONDUIT).
 3. STEEL OR EMT CONDUIT NOMINAL 4" DIAMETER RIGID CONDUIT CENTERED IN THE THROUGH OPENING.
 4. FORMING MATERIAL MINERAL WOOL, MINIMUM DENSITY OF 4.4 PCF FIRMLY PACKED WITHIN THE OPENING TO A NOMINAL THICKNESS OF 3" FOR FLOORS. FOR WALLS, THE MINERAL WOOL SHALL BE CENTERED IN THE OPENING.
 5. FILL, VOID OR CAVITY MATERIAL" - FILL MATERIAL THAT IS TROWELED INTO THE OPENING TO A MINIMUM THICKNESS OF 1/2" INSTALLED ON BOTH SURFACES OF THE OPENING.

NOTE:
BEARING THE "UL 1429" CLASSIFICATION MARKING

2 FIRE STOP DETAIL WALL OR FLOOR

NTS



3 CORD CROP RECEPTACLE DETAIL

NTS

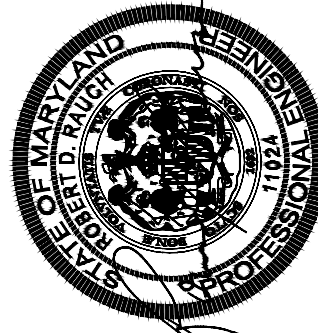
ELECTRICAL DETAILS

RIDDLE FARM - WTP HVAC

WORCESTER COUNTY, MARYLAND

RAUCH
Engineering | Survey | Architecture | Environmental

Main Office: 106 N Harrison St - Easton, MD 21601
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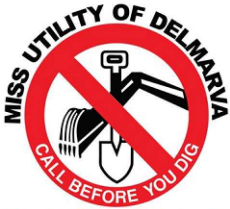


Professional Certification.
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

License No. 11024
Expiration Date: July 24, 2028

REVISIONS

REV. #	DATE	DESCRIPTION



DATE: 9/14/2026
SCALE: AS SHOWN
DRAWN BY: EEV
DESIGNED BY: HJH
APPROVED BY:

SHEET NO.:
E-400

PANEL P-1													
VOLTAGE (L-N):				120				ENCLOSURE TYPE: -----					
VOLTAGE (L-L):				208				MOUNTING: SURFACE					
PHASES, WIRES:				3 ϕ 4 W				AIC RATING (A): 100					
MINIMUM BUS CAPACITY (A):				100 A				NOTES: -----					
MAIN O.C. DEVICE (A):				100 A									
CKT NO	DESCRIPTION	TRIP AMPS	POLE	PHASE LOADS (VA)						POLE	TRIP AMPS	DESCRIPTION	CKT NO
				A		B		C					
1,3	HOT WATER HEATER	20	2	0	0					1	20	FLDC MOTOR #1	2
1,3	HOT WATER HEATER	20	2			0	0			1	20	TURBIDITY #1	4
5	SCADA PANEL	20	1					0	0	1	20	TURBIDITY #3	6
7	FLDC MOTOR #2	20	1	0	0					1	20	FLDC MOTOR #3	8
9	CHART REC.	20	1			0	0			1	20	SMOKE DETECTORS	10
11	#1 VALVE POWER	20	1					0	0	1	20	PH ANALYZER	12
13	#2 VALVE POWER	20	1	0	0					1	20	CHLORINE ANALYZER	14
15	#3 VALVE POWER	20	1			0	0			1	20	TURBIDITY #2	16
17	FILTER PANEL	20	1					0	0	1	20	CAUSTIC MIXER	18
19	DEHUMIDIFIER #1	20	1	0	0					1	20	FLOYMER MIXER	20
21,23	OUTSIDE MINISPLIT	20	2			0	0			1	20	HYRO CLORIDE MIXER	22
21,23	OUTSIDE MINISPLIT	20	2					0	0	2	20	HEAT BATHROOM	24,26
25	DEHUMIDIFIER #2	20	1	0	0					2	20	HEAT BATHROOM	24,26
27	A/C	20	1			0	0			1	20	BLDG. RECS.	28
29	GARAGE DOOR	20	1					0	0	1	20	BLDG. RECS.	30
31,35,37	MAIN	20	3	0	-----					-----	-----	-----	-----
31,35,37	MAIN	20	3			0	-----			-----	-----	-----	-----
31,35,37	MAIN	20	3					0		-----	-----	-----	-----
CONNECTED LOAD PHASE TOTALS (VA)													
				-----		-----		-----					